in the Godwins Report (page 48-FN 3) that,

> "Supporting evidence for low incidence of turnover at TELCO relative to national average can be seen by the higher average age and past service of TELCO employees relative to average age and service of national working population."

The point here is not that there have been "historical patterns of longer service life and higher average age for TELCO employees," but rather that the current age/service characteristics of TELCO (age = 41.6 / service = 16.6, as of 1/1/91) provide evidence of low turnover rates (i.e. low turnover rates in the past produced the current demographic makeup of the group). Recent downsizing could not have contributed to producing these age/service characteristics because recent staff reductions among the LECs were not accomplished through layoffs among the younger short-service employees prior to 1991.

While the above concept is well known among professional actuaries, we have performed some additional analysis and provided a more detailed explanation below, which should make our point somewhat clearer.

The average age and service of an employee group is not a simple function of withdrawal rates, but higher withdrawal will generally push down averages.[2]

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2 The fact that the average age of a population will increase if mortality rates are reduced is obvious. It can also be shown that a similar effect occurs in a company's "population". An employee group has exits from death, retirement, and termination, which exits correspond to mortality in the general population. Population growth, the growth of the firm, and the economic cycle all affect the number and average ages of replacements, which replacements correspond to births in the general population. Since the calculations for TELCO were based on very large employee groups, the variations in growth of firms cannot hide the effect of withdrawals.

Calculations were performed to test the hypothesis that the "T_6 / T_2" choice of withdrawal tables was consistent with the observed differentials between average age and average service of TELCO compared to the nation as a whole. With hire age and retirement age as parameters for calculating the average age and average service of stationary populations resulting from T_2, T_6, and T_{10} based upon all retirements at a given retirement age and all hires at a given hire age, the table in Appendix B clearly indicates differences that are not only consistent with the results shown in the Godwins Report, but in fact suggest that the differences in turnover rates between TELCO and the rest of the U.S. working population may be even greater than T-2 versus T-6.

For example, if one were to look at a company that hires new employees at an average age of 27, that experiences turnover rates equal to T-2, and retirements at age 62 (a situation not unlike TELCO), one would find that after this company matures it can expect to have an employee population with an average age of 41.54, and an average past service of 14.54 years. If, instead, turnover rates equal to T-6 were applied, the average age and service of the population would be 38.80 and 11.80, respectively. This theoretical difference, between populations subject to T-6 and T-2, is actually less than the observed differences in age/service characteristics between TELCO and the non-TELCO firms (see page 47 of the Godwins Report). While TELCO and the rest of the GNP have different retirement patterns, it can be seen from the table that differences in average retirement ages have only a minor impact on the basic result.

Finally, it should be noted that the sensitivity analysis performed by Godwins is more than sufficient to allow for any potential understatement of TELCO's turnover rates. On

pages 34 and 35 of the Godwins Report, it is shown that even if the same turnover rates were used for both TELCO and the rest of the working population, the relative impact of SFAS 106 on GNP, compared to TELCO, would only increase from 28.3% to 34.6%. As noted on page 40 of the Godwins Report, overall results are shown using values for this relative impact, ranging from 17.8% to 44.5%.

C. Accuracy and Reliability of Results

There were two objections raised with respect to the overall accuracy and reliability of the Godwins findings that labor costs of non-LEC firms sponsoring retiree medical plans will increase 3.19% as a result of SFAS 106.

AT&T Contention - (pp. 9 - 10) "The results of the Godwins Study depend on the calculation that the adoption of SFAS 106 will increase labor costs by 3% for firms incurring OPEB expenses. The 3% estimate is derived using numerous factors, each subject to error as noted in Godwins' section on sensitivity of results (pp. 34-43). The cumulative impact of reasonable variations in each factor renders the 3% estimate suspect."

Response - It is precisely the sensitivity analysis referred to by AT&T that gives us great confidence in the robustness of the bottom line result. In the extremely unlikely event that the actual increase in labor costs is as high as 5% (extremely unlikely, because such a result would require that virtually all of the factors for which uncertainty exists[3] have been maximally understated)[4] then the total amount of unrecovered SFAS 106 costs is reduced by a mere 12% (from 84.8% to 74.7% as shown on page 41 of the Godwins study). Thus, there can be little doubt as to the solidity of the results, and the Commission can be quite confident that any uncertainty in the basic results of the actuarial analysis will not have a significant effect on the final result.

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3 See pp. 34-37 of the Godwins study.

4 In fact, great care was taken to be conservative in estimating those factors to ensure that the impact of SFAS 106 on GNP-PI was, if anything, overstated. See, for example, the following in the Godwins Report:

- Calculation of prefunding adjustment (page 19)
- Basic BLI methodology (page 34)
- Average retirement ages for non-LECs (page 35)
- Discussion of labor cost percentage adjustment (pages 36-37)

MCI Contention - (Page 25)

"In no place within the study is there an attempt to verify the costs of SFAS 106 to non-LEC firms."

"The 3.19% increase in labor costs to non-LEC firms providing OPEB does not square with other estimates of the SFAS 106 costs..... This amount is only 40% of the estimates by Warshawsky (in Postretirement Health Benefit Plans: Costs and Liabilities for Private Employers, No. 76 Finance and Economics Discussion series, Division of Research and Statistics, Division of Monetary Affairs, Federal Reserve Board, Washington, D.C., June 1989)."

Response - MCI's contention is a gross misrepresentation of the facts. It is true that in the referenced article Warshawsky does estimate that, based on 1988 data, the aggregate increase in retiree medical expense due to the introduction of SFAS 106 would be much higher than the 3.19% estimated by Godwins. However, despite the fact that Warshawsky is a well trained economist and clearly undertook his research in a responsible manner, MCI has utilized the results of that research irresponsibly. Specifically, the following must be noted:

(1) Warshawsky himself now recognizes that his original estimate was unrealistically high, and he has significantly reduced this estimate in his most recent analysis.[5]

(2) Even Warshawsky's revised estimate is significantly higher than other aggregate estimates produced by the GAO[6] and EBRI[7] for the same time period. Despite this,

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5 "The Uncertain Promise of Retiree Health Benefits," the AEI Press, 1992.

6 General Accounting Office, Human Resources Division, "Employee Benefits: Companies' Retiree Health Liabilities Large, Advance Funding Costly," June 1989, GAO/HRD-89-51.

7 Employee Benefit Research Institute, "Issues and Trends in Retiree Health Insurance Benefits", Issue Brief No. 84, November 1988.

MCI selected Warshawsky's earlier estimate and chose to ignore both Warshawsky's revision and other lower estimates. These other estimates are quite consistent with the Godwins estimate, and are fully encompassed by the sensitivity analysis included in the Godwins Report.

(3) Warshawsky's revised estimate is itself too high because his assumptions regarding plan provisions, actuarial assumptions, and demographics were wrong. These erroneous assumptions are described in greater detail below.

(4) Estimates produced by Warshawsky, as well as the GAO and EBRI, are all based on 1988 plan provisions. The Godwins estimate is more accurate because it is based on 1990 plan provisions, which are more up-to-date.

Each of these points is discussed in greater detail below.

(1) Warshawsky now recognizes that his original estimate was wrong.

In the material referred to by MCI, Warshawsky estimated that aggregate SFAS 106 costs in 1988 dollars would have been $67.9 billion, while "pay-as-you-go" costs were $14.5 billion. This net increase in costs of $53.4 billion translates to approximately 6.82% of 1988 total compensation[8] for covered employees, and directly corresponds to the Godwins estimate of 3.19%.

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8 1988 Total Compensation for U.S. workers was $2921.3 billion as shown in the November, 1991 Survey of Current Business. Based on the GAO study, 26.8% of all workers are covered by plans subject to SFAS 106 (see page 21 of the Godwins Report). Therefore, according to Warshawsky, additional SFAS 106 costs are 53.4 + (2921.3 X .268) = 6.82% of compensation.

Warshawsky now realizes that his earlier estimate was based on an erroneous demographic makeup of the total covered population (for example, the ratio of active employees to retirees used was 3.8 to 1, which is far lower than for the typical company[9]). In his recent book (The Uncertain Promise of Retiree Health Benefits, the AEI Press 1992), Warshawsky revises his estimate of aggregate 1988 SFAS 106 accrued liability and expense downward by 25% and 12%, respectively. In this new study, the aggregate estimate of SFAS 106 expense becomes $58.9 billion, while "pay-as-you-go" costs are reduced to $11.3 billion. Thus the net increase due to SFAS 106 of $47.6 billion now translates to an increase of 6.08% of compensation. As shown in item (3) below, even this estimate is unrealistically high, due to the incorrect assumptions that Warshawsky relies on.

(2) Warshawsky's revised estimate is significantly higher than other estimates of aggregate SFAS 106 costs.

Both the GAO and EBRI produced estimates of SFAS 106 liabilities, based on 1988 data, that can be directly compared to that produced by Warshawsky. Warshawsky's revised estimate of $332.1 billion is, in fact, 50% higher than the GAO estimate of $221.0 billion, and 34% higher than EBRI's estimate of $247.0 billion. While neither the GAO nor EBRI explicitly calculated the increase in aggregate annual expense as a result of SFAS 106, their liability estimates translate to increases of 4.05%[10] and 4.52%[11] of compensation, respectively. Both of these values are well within the range of values used in the sensitivity analysis performed by Godwins. Page 41 of the Godwins Report illustrates results assuming the aggregate increase in costs due to SFAS 106 range from 2% to 5% of total compensation of covered employees. Even at the very high value of 5% (high because this

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9 See page 47 of the Godwins Report.

10 221 + 332.1 x 6.08% = 4.05

11 247 + 332.1 x 6.08% = 4.52

value, in addition to being materially higher than both the GAO and EBRI estimates, would also require that virtually all the factors outlined on pages 34-37 of the Godwins Report to have been maximally underestimated), the percentage of TELCO's SFAS 106 costs that are not recovered, through the GNP-PI increase and wage rate reduction, is only reduced from 84.8% to 74.7%.

(3) *Warshawsky's revised estimate is too high due to incorrect assumptions.*

In carefully reviewing the methodology employed by Warshawsky, it becomes quite clear why he arrives at aggregate cost estimates that are so much higher than the GAO and the EBRI estimates, as well as the Godwins estimate. Simply put, the methodology employed by Warshawsky utilizes assumptions regarding plan provisions, the demographic profile of the covered population, and actuarial assumptions to be used by companies to calculate SFAS 106 expense, that are demonstrably wrong. Specifically, in estimating the SFAS 106 accrued liability, Warshawsky:

- Assumes a "reasonably generous health plan with low deductibles and co-payments" for <u>all</u> companies (Pg. 92). A multitude of surveys (see, for example, <u>Health Care for Retired Employees</u> by Betty Malroy Stagg, The Conference Board Research Bulletin No. 202, 1987) demonstrate that this is simply not the case. Many companies in fact provide quite a bit less than "reasonably generous" benefits.[12] In fact, using data not available to Warshawsky, the Godwins BLI methodology was developed to specifically isolate the variation of "generosity" among companies' retiree medical plans.

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12 See page 7 of the Conference Board report cited above and pages 9-11 of the <u>Hewitt Associates 1990 Survey of Retiree Medical Benefits</u>.

- Assumes lifetime coverage for both the retiree and his spouse, for all companies. This is clearly unrealistic, and contradicted by the Conference Board material referenced above.[13]

- Assumes all active employees become eligible for full benefits at age 55. This also is contradicted by the studies referred to above.[14]

- Assumes mortality at 83 GAM[15] rates while many companies continue to assume higher mortality rates.

- Utilizes a 1% spread between the discount rate and medical trend rate combined with a 4% per year aging factor.

- Assumes a retirement age of 62.5, in contrast with the evidence of average retirement ages between 63.5 and 64, as shown on page 35 of the Godwins Report.

Strong evidence that Warshawsky's actuarial assumptions as to trend and mortality result in unrealistically high SFAS 106 costs can be seen from the fact that the LECs used much lower cost assumptions to calculate their SFAS 106 costs. In fact, only 2 out of the 11 LECs on whom data was collected used the 83 GAM table for their SFAS 106 calculations, and the average spread between the discount rate and the ultimate trend rate for the LECs' SFAS 106 calculations is 2.57%. This is particularly compelling, given the fact that the respondents to the LECs' filings with the Commission have indicated that they believe that the assumptions used by the LECs overstate their SFAS 106 accruals.

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13 See pages 7-8 of the Conference Board report.

14 See page 9 of the Hewitt Associates study cited in footnote 12 on the previous page.

15 The 1983 GAM mortality table is the most modern (lowest death rates) currently used for pension valuations in the United States. While it was published by the Society of Actuaries in October, 1983, it still has not been universally adopted by enrolled actuaries for their pension valuations.

In addition to the problems cited above, Warshawsky also assumes that the demographic profile of the entire covered population is a "reasonably mature and stable group" which is "typical of many large companies." While Warshawsky does not disclose the specific age and service characteristics of this group, based on his statements we must assume that it is older and has longer service than the average covered group. (Note that the GAO survey[16] reports that a very significant number of retiree medical programs are sponsored by companies with less than 500 employees.) By utilizing a demographic profile of such age/service characteristics, Warshawsky is undoubtedly overstating aggregate costs still further.

(4) *All three estimates (Warshawsky, GAO and EBRI) are based on out-of-date data.*

After rejecting Warshawsky's estimate due to the serious problems noted above, there still remains the question of why the GAO and EBRI estimates are both slightly higher than the Godwins estimate of aggregate SFAS 106 costs. The simple explanation for this is that retiree medical plans have changed substantially, between the time the data was gathered for the three estimates noted above (1988), and the time period for which plan provision data was collected for the Godwins study (1990). In fact, according to the Hewitt Associates 1990 Survey of Retiree Medical Benefits, 70% of all surveyed companies changed their retiree medical plans in 1988 or 1989. Thus, the Godwins estimate must be regarded as more accurate because it uses more recent information.

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16 General Accounting Office, Employee Benefits, "Extent of Companies' Retiree Health Coverage," GAO/HRD-90-92, March 1990.

SECTION III

RESPONSE TO OBJECTIONS REGARDING MACROECONOMIC ANALYSIS

A. Methodology and Choice of Model

MCI and AT&T raise three questions about the choice of a macroeconomic model and its use in estimating the impact of SFAS 106 on GNP-PI.

MCI Contention - (Page 31)

"Such a model, in its final form, is nothing more than a somewhat advanced spreadsheet model. ... This cannot be viewed as an objective forecasting tool, but rather as a means to legitimize overly simplistic calculations."

Response -

By calling the Godwins model a "somewhat advanced spreadsheet model", MCI means that the model is used to perform "what if" exercises. But a "what if" exercise is exactly what is required to study the impact on GNP-PI of the introduction of SFAS 106. To calculate the differential impact of SFAS 106, we need to ask "what happens to the value of GNP-PI if SFAS 106 is introduced." Any economic model, even a large-scale commercial econometric forecasting model, would have to be put through a "what if" exercise to determine the impact of SFAS 106. The criticism of the Godwins model for being used to perform "what if" exercises is unwarranted.

MCI Contention - (Page 32)

"USTA contends that the model, while not being useful for forecasting macroeconomic activity, can somehow be used for forecasting the differences in macroeconomic activity depending on a shift in an exogenous variable (the multiplicative term used to adjust labor costs for the SFAS-106 impacts.)[41] [footnote not repeated here] This distinction is artificial--if a model cannot be relied upon to forecast the interactions within the economy, how can it be utilized to predict the differences due to some alteration to one value within the model?"

Godwins

Response -

To appreciate the distinction that MCI asserts is artificial, consider a simple example from outside the realm of regulation or economics. Suppose you are planning to take a 500-mile trip by car and you are concerned about how long the drive will take. The length of time will depend on the weather, road constructions along the way, traffic, accidents along the way, whether your car has mechanical trouble, and so on. Owing to the various unpredictable factors, any forecast of the duration of the trip may well be in error by an hour or more.

Now suppose that in planning your trip you want to know how much driving time you can save by packing lunch to eat while driving. If lunch at a fast food restaurant takes about half an hour, you estimate that packing lunch saves about half an hour. This informed guess can be made without having to (1) predict the overall duration of a trip that includes stopping for lunch; and (2) predict the overall duration of a trip that does not include stopping for lunch. You can avoid all of the complicating factors involved in trying to predict the overall duration of the trip. The prediction of the effect on duration of stopping for lunch may not be exactly right. (Indeed if you pack lunch rather than stop for lunch, you will never know if your prediction was right.) However, the forecast error of the effect of stopping for lunch is likely to be much smaller than the forecast error for the overall duration of the trip.

This example illustrates that when estimating the effect on a variable caused by a particular event, it is not necessary to forecast the actual value of that variable. The Godwins model calculates the effect of SFAS 106 on GNP-PI without having to forecast the actual level of GNP-PI.

AT&T Contention - (Page 10)

"Second, Godwins offers no methodology to test the validity of the macroeconomic model's results...If the model parameters and equations do not adequately describe real world data, then any predictions it gives are of little value."

Response -

These comments raise two separate questions: (1) do the model's parameters and equations adequately describe real world data? and (2) how can one test the validity of the model's results about the impact of the introduction of SFAS 106? In answer to the first question, the model's key parameters do describe real world data. The inputs to the model consist of 6 numerical parameters. Two parameters measure the share of labor cost in total cost, and the baseline values of these parameters were chosen to match the actual share of labor cost in total cost in the United States. One parameter measures the share of private sector employment covered by SFAS 106 benefits, and the value of this parameter was chosen to reflect the fact that of the 95.8 million private sector employees, 30.7 million are eligible to have a portion of their medical costs in retirement met by their employer's medical plan, subject to SFAS 106. A fourth parameter measures the percentage by which SFAS 106 directly increases the labor costs of employers that offer post-retirement medical benefits. The baseline value for this parameter was based on the extensive actuarial study in the Godwins Report. A fifth parameter is the wage elasticity of labor supply, and as discussed on page 30 of the Godwins Report, the value of this elasticity was based on a published summary, by Mark R. Killingsworth, of the extensive econometric literature on the elasticity of labor supply. A sixth parameter, the price elasticity of demand, was not based directly on a specific set of data or a specific set of econometric studies. However, econometric studies of demand for various goods tend to find price elasticities on the order

of one, or smaller. (For example, on page 16 of its report submitted in opposition to the direct cases, ETI cites a price elasticity of demand of 0.723 for interstate switched access, in a study by J. Gatto et. al. of AT&T.) Experimentation with the model revealed that (1) the results of the model are not very sensitive to the price elasticity of demand; and (2) higher values of the price elasticity of demand tend to increase the calculated impact of SFAS 106 on GNP-PI. To guard against understating the impact on GNP-PI of the introduction of SFAS 106, it was decided to use a value for this parameter that likely overstates the true value, so a value of 1.5 was used in the baseline case, as explained on page 29 of the Godwins Report.

The second question, which concerns testing the model's results about the impact of SFAS 106, is a conceptual question that would confront any model, not just the Godwins model, used to estimate the impact of SFAS 106 on GNP-PI. As AT&T points out on page 10, "there is no way to independently verify by observation the true change in GNP-PI due to SFAS 106 even after SFAS 106 goes into effect." This quoted sentence is correct, but notice that this sentence is independent of the choice of a model. As explained in the May, 1992 Godwins Response to Paragraph 16 of the FCC Order of Investigation and Suspension (p. 7), it is impossible to directly observe the impact of SFAS 106 on GNP-PI, even after the fact, because we have no way to directly observe what GNP-PI *would have been* in the absence of SFAS 106. This problem is faced by predicted changes based on econometric models as well as changes based on quantitative classical general equilibrium models, such as the one used in the Godwins Report.

AT&T (p. 10) goes on to point out that "standard economic practice is to perform tests whenever a model is based on estimates to see how closely the model mirrors actual data." For example, large-scale commercial econometric forecasting models are designed to forecast the values of various macroeconomic variables. Then the actual values of these variables are compared to the values forecasted by the model, and the difference between the actual and forecasted values is called the forecast error. Statistical properties of forecast errors, such as the root mean square error or the mean absolute forecast error, are then calculated. Although this statistical analysis of forecasts is commonly applied to large-scale econometric models, one should not be misled into thinking that these analyses can test the validity of a model's prediction about a change in a macroeconomic variable (such as GNP-PI), when some aspect of the model is changed (such as the introduction of SFAS 106). Statistical properties of forecast errors can be used to test the accuracy of conditional forecasts[17], but do not address the question of the model's accuracy when predicting the effects of a change in the model's inputs.

We are faced with a choice between a quantitative classical general equilibrium model of the sort used in the Godwins Report and a large-scale commercial econometric forecasting model. Neither type of model has been tested for the validity of the predicted macroeconomic effects resulting from the introduction of SFAS 106. Both types of models

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17 Conditional forecasts use assumed future values of various inputs to the model, and thus are "conditional" on these assumed future values.

"fit" their key parameters to real world data: quantitative classical general equilibrium models base their parameters on independent econometric studies and/or calibration of certain parameters to make the values of certain variables match actual data; econometric models estimate the values of their parameters econometrically.

Which type of model should we use? The Godwins Report lists five desirable criteria for a model to be used to study the impact of SFAS 106 on GNP-PI. The quantitative classical general equilibrium model in the Godwins Report satisfies all five of these criteria, but as explained in the May, 1992 Godwins Response to Paragraph 16 of the FCC Order of Investigation and Suspension, large-scale commercial econometric forecasting models fail to satisfy at least two of these criteria.

B. Sensitivity

AT&T raised three questions about the sensitivity of the results.

AT&T Contention - (Page 10)

"Third, the validity of the macroeconomic model is further called into question because of the great sensitivity it exhibits to changes in assumptions. For example, altering the baseline assumption of labor elasticity from zero to an elasticity of 0.1 increases the impact on GNP-PI by more than 400% (a 0.0642% impact vs. the 0.0124% base case impact.)"

Response -

In judging whether the difference between 0.0124% and 0.0642% is large, it is important to look at the magnitudes involved. Both of these numbers are a tiny fraction of 1 percent. True, the larger of these two numbers is 5 times as large as the smaller number, but both of these numbers are essentially zero, and five times zero is still zero. To see that there is no essential difference, suppose that in the absence of SFAS 106, GNP-PI would have a value of 125.0. A 0.0124% increase would result in a GNP-PI of 125.0155, whereas a 0.0642% increase would result in a GNP-PI of 125.0802. GNP-PI is only reported to one decimal place, so the alleged "great sensitivity" amounts to the difference between 125.0 and 125.1 for GNP-PI. Rather than looking unstable, the results appear remarkably robust to this change in parameter value.

Instead of focusing on the sensitivity of the GNP-PI effect, one might want to focus on the percentage of additional SFAS 106 costs "to be met from other sources" reported in columns headed (c) in the sensitivity analysis on page 41 of the Godwins Report. This number is the "bottom line" number. As shown on page 41, in the baseline case, the portion of additional SFAS 106 costs to be met from other sources is 84.8%; increasing the labor supply

elasticity to 0.1 reduces this number to 84.1%. Again, the results are remarkably robust.

AT&T Contention - (Page 11) "Moreover, Godwins' analysis looks at changes in parameter values on a 'one at a time' basis (p. 38)."

Response - Section IV of the Godwins Report is devoted entirely to sensitivity analysis, and it presents two tables of results (page 39 and page 41). The table on page 39 focuses only on the sensitivity of GNP-PI to changes in parameter values, and examines these changes in parameter values one at a time. However, the table on page 41, which summarizes the sensitivity analysis for the overall results, does not look at parameter changes one at a time.

Why does the table on page 39 focus on changes in parameter values one a time? It was recognized at the outset that there are 648 possible combinations of parameter values.[18] Rather than grind through all of these combinations, it was decided to first examine the effects of changes in parameter values one at a time to learn which parameters have the largest impact on GNP-PI. As shown on page 39, the direct impact on labor costs in sector 2 and the labor supply elasticity are the two parameters for which GNP-PI exhibits the most sensitivity. Then, having learned that GNP-PI exhibits the greatest sensitivity to these two parameters, the sensitivity analysis for the overall results on page 41 examines all combinations of these two parameters.

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18 Including the baseline values, the Godwins Report examined:
- 2 values of the price elasticity of demand;
- 3 values of labor share in total cost, sector 1;
- 3 values of labor share in total cost, sector 2;
- 3 values of fraction of labor employed in sector 2;
- 3 values of direct impact on labor costs in sector 2;
- 4 values of labor supply elasticity

Thus, there are 2 x 3 x 3 x 3 x 3 x 4 = 648 combinations of parameter values.

It still does not seem to be worthwhile to grind through all 648 combinations, but, in response to AT&T's comment, additional sensitivity analysis was performed to explore parameter values that lead to low values of the percentage of additional SFAS 106 costs to be met from other sources (which is 84.8% in the baseline case). The additional sensitivity analysis was performed as follows: Four of the parameters were each set at the value that led to the largest increase in GNP-PI when the parameters were varied one at a time. (Price elasticity of demand = 3.0; share of labor costs in total cost, sector 1 = 0.78; share of labor costs in total cost, sector 2 = 0.78; initial fraction of labor employed in sector 2 = 0.4.) While these four parameters were set at values that individually contributed to the largest impact on GNP-PI, each of the four values of the labor supply elasticity was examined in combination with each of the three values of the direct impact on labor costs in sector 2. The results of this additional sensitivity analysis are reported in Appendix C. Notice that the lowest value obtained for the percentage of additional SFAS 106 costs to be met from other sources is 60.1%. This number was obtained by combining unlikely and extreme values of all 6 parameters. The chance that all 6 of these parameters simultaneously take on such extreme values is essentially negligible. Whereas the finding in the Godwins Report that 84.8% of additional SFAS 106 costs need to be met from other sources should be regarded as a conservative estimate, the 60.1% figure should be regarded as an unrealistically low underestimate of the amount requiring recovery from other sources.

AT&T Contention - (Pages 12-13)

"Because the SFAS 106 accrual is inherently imprecise and measurement of its impact on the economy is extremely difficult to assess, it is not possible to predict the full extent that SFAS 106 will affect prices in the economy generally (as both Godwins and NERA attempt to do).*" [footnote omitted]

Response - The Godwins Report explicitly recognizes that there are uncertainties associated with the calculation of the effects of the introduction of SFAS 106, and deals with these uncertainties in two ways: (1) whenever a decision needs to be made about the numerical value of some data or parameter, the Godwins Report always attempts to err on the side of overstating the impact on GNP-PI of the introduction of SFAS 106. In the macroeconomic analysis, this conservative approach is represented by the choice of baseline values of the price elasticity of demand and the labor supply elasticity that are likely to be higher than the true values of these parameters, as explained on pages 29 and 30, respectively, of the Godwins Report. (In the actuarial analysis, this same conservative approach is noted in footnote 4 on page 16 of this Report.) This conservative approach lends additional support to the finding that SFAS 106 will have a tiny effect on GNP-PI, because even the small effect predicted by Godwins is probably an overstatement of the true effect. (2) Recognizing the uncertainty associated with the data and parameters, Godwins devoted an entire section of its report (Section IV) to sensitivity analysis. Again, the sensitivity analysis lends additional support to the conclusion that the introduction of SFAS 106 has only a tiny effect on GNP-PI.

C. Details of Specification of the Macroeconomic Model

MCI raised three questions concerning the detailed specification of the model.

MCI Contention - (Page 32) MCI asserts that the USTA model assumes among other things "perfect substitutability of capital and labor."

Response - This assertion is plain wrong. The most common measure of the substitutability of capital and labor is the elasticity of substitution between capital and labor. "Perfect substitutability" describes the situation in which the value of this elasticity of substitution is infinite. In the USTA model, the value of this elasticity of substitution is equal to one, rather than infinity, as implied by MCI's assertion.

MCI Contention - (Page 33) MCI states (correctly) that the model "has no international sector."

Response - Every economic model is a simplification of reality. As a practical matter, a usable model must ignore many aspects of reality. The skill in building a good model rests in including those aspects of reality that are quantitatively important for the issues being studied, and in ignoring those aspects of reality that are less quantitatively important for the issues being studied. Despite all the attention that international trade and foreign competition receive in the press, it must be remembered that international trade is a small part of U.S. GNP. In 1991, net exports were equal to 0.5% of GNP in the U.S. (net exports were negative, so it is the magnitude, or absolute value, of net exports that was 0.5% of GNP). Even looking at gross trade flows rather than the net flow, imports accounted for only 10.9% of GNP, and exports accounted for

only 10.4% of GNP in 1991. Thus, the inclusion of an international sector did not seem important to study the impact of SFAS 106, and there is nothing convincing in the MCI statement that would lead to revising this judgment.

MCI Contention - (Page 33) "Finally, although the model is attempting to review a dynamic phenomenon, the structure of the model is static in form."

Response - Rather than being a weakness, the static nature of the model is a virtue. There is quite a bit of disagreement among macroeconomists about the short-run dynamic behavior of the macroeconomy, and indeed economists seem to have a lot of trouble predicting short-run dynamic behavior, such as turning points in the business cycle. Because the prediction of short-run macroeconomic behavior is so difficult, it was decided to avoid this task, and instead to analyze the ultimate effects of SFAS 106 when the economy reaches a new equilibrium. A static model, which simply avoids difficult short-run dynamics, is appropriate for analyzing the ultimate effects of the introduction of SFAS 106. As stated in the Godwins Report (p. 26), "The model is best viewed as a long-run model that fully incorporates the effects of SFAS 106." An additional advantage of focusing on the "long-run" or full effect of SFAS 106 is that it probably overstates the short-run impact on GNP-PI of the introduction of SFAS 106 because, owing to various lags in the economy's adjustment process, short-run effects are generally smaller than long-run effects. This likely overstatement of the impact of SFAS 106 is consistent with the conservative approach of the Godwins Report, which is to guard against understating the impact on GNP-PI of SFAS 106.

D. Response to Comments of Independent Macroeconomist on the Model and its Results

The statement below represents the entire commentary on the macroeconomic model by an independent economist engaged by MCI.

MCI (Drazen) - (Pages 8-9)

"The USTA study also presents a macroeconomic model to estimate the effect of SFAS 106 on the GNP Price Index (GNP-PI) to see what fraction of costs will be recovered via the increase in GNP-PI. The macroeconomic model is theoretically correct, but a very highly simplified and abstract model of the U.S. economy. For example, there are assumed to be only two aggregate factors of production, total capital and total labor, and the whole economy is assumed to be perfectly competitive. Hence, the true effect of SFAS 106 on the GNP-PI may be significantly different (in a statistical sense, though probably not in order of magnitude) than the figure of 0.0124% that is presented. The true effect on the average wage rate in the economy may also be very different than what the very simple macroeconomic model predicts, both in terms of statistical significance and in terms of order of magnitude."

Response -

This statement is clearly and carefully written by Allan Drazen, a well-respected economist. The remarks below are presented to help non-economists interpret some of the economic jargon used by Drazen.

Drazen's assertion that the "macroeconomic model is theoretically correct" should be regarded as praise, since this judgment comes from a macroeconomist who has published many of his own theoretical models. To an economist, the statement that the model is theoretically correct indicates that the basic economics underlying the model is sound, and that the mathematical formulation of the model is an appropriate formalization of the economics.

Although Drazen certifies the model as theoretically correct, he points out that it is "very highly simplified and abstract." Whether "very highly simplified and

abstract" is a virtue or a vice depends on the benefits and drawbacks associated with simplification and abstraction. In this case, simplification and abstraction has the benefit of allowing the model to be a tractable representation of the important economic phenomena associated with an increase in labor costs, such as that associated with the introduction of SFAS 106. In addition to promoting tractability, the simplification avoids the possibility that irrelevant complications somehow contaminate the model's results.

Drazen's statement focuses on the drawbacks of simplification and abstraction in this case. As will be explained below, a careful reading of Drazen's statement indicates that he thinks that, despite the simplification and abstraction, the Godwins model produced essentially the right answer for the effect on GNP-PI, but he has some doubt about the effect on the wage rate.

The key to understanding Drazen's statement lies in the parenthetical statement in the quote "may be significantly different (in a statistical sense, though probably not in order of magnitude)". Economists often distinguish between two concepts of significance: statistical significance vs. economic significance. For instance, the true effect of something is said to be statistically significantly different from the estimated effect if econometric and/or statistical analyses indicate that we can have a high degree of confidence (usually 95% confidence) that the true effect is different from the estimated effect. It is possible that the estimated effect is very close to the true effect, and yet statistical and/or econometric methods may detect a statistically significant difference; in this case, economists would describe the difference as

statistically significant, but not economically significant.

Drazen's statement indicates that the true effect of SFAS 106 on GNP-PI may be statistically significantly different -- but not economically significantly different -- from the effect estimated by the Godwins model. He states that the true effect on GNP-PI is probably not different, in order of magnitude, from the 0.0124% effect estimated by Godwins. That is, the order of magnitude of the Godwins estimate is tiny, and Drazen does not dispute the finding of a tiny effect on GNP-PI.

The calculated effect of SFAS 106 on the wage rate is almost two orders of magnitude larger than the calculated effect on GNP-PI, and Drazen suggests that the true effect on the wage rate may differ from the calculated effect, both in terms of statistical significance, and in terms of order of magnitude. However, he does not indicate whether the effect calculated by Godwins is likely to be too large or too small.

To summarize, Drazen's remarks about the macroeconomic results of the Godwins Report serve as much to bolster the results as to challenge them. Drazen pronounces the macroeconomic model to be theoretically correct and he notes, but does not challenge, the finding of a tiny impact on GNP-PI. Finally, he does not indicate whether his doubts about the effects on the wage rate would lead him to expect a larger or a smaller effect than is found in the Godwins Report.